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U.S.S.N.: 10/675,002
Filing Date: 09/30/2003
EMC Docket No.: EMC-03-046

REMARKS

In response to the office action mailed on April 18, 2007, applicant requests reconsideration. In the office action, claims 1 – 20 were rejected. Claims 1 – 20 remain pending in this application.

Claim Rejections – 35 U.S.C. §102

Claims 10 – 13 are rejected under 35 U.S.C. §102(b) as being anticipated by Hagiawara (U.S. Pat. No. 5,450,419). This rejection is respectfully traversed, as Hagiawara does not teach every element recited in independent claim 1, as is required for a proper rejection under 35 U.S.C. §102.

Independent claim 10 recites a data transmission system comprising:

a transmission device for transmitting command data elements to a downstream device, the command data elements being generated and transmitted according to a predetermined protocol; and

a reception device for receiving response data elements from the downstream device, the reception device including a protocol checking device for checking at least one state of the response data elements to determine the validity of the at least one state of the response data elements.

Hagiawara teaches a ring transmission system including a main controller 2 and a plurality of error checking nodes 3-1 to 3-n. Communication data is transmitted from the main controller 2 to the nodes 3-1 to 3-n. The nodes check the communication data for errors in data length and in an associated CRC code. If errors are present, the node adds an error detection component to the communication data and returns the communication data, along with the appended error detection component, to the main controller. The original portion of the communication data, including the error correction codes, is not altered in any way.

Accordingly, Hagiawara does not teach "a transmission device for transmitting command data elements to a downstream device" and "a reception device for receiving response data elements from the downstream device" wherein "the reception device include[ing]es a protocol

checking device for checking at least one state of the response data elements to determine the validity of the at least one state of the response data elements."

Specifically, Hagiawara does not teach a downstream device to which the transmission device transmits command data elements and from which the reception device receives response data elements. Further, each communication data transmitted by the main controller is the same communication data received by the nodes. Hagiawara does not teach "command data elements" and "response data elements."

Even if the nodes 3-1 to 3-n were to be considered downstream devices, then Hagiawara does not teach the recited reception device. Again, each communication data transmitted by the main controller is the same communication data received by the main controller, i.e., Hagiawara does not teach "command data elements" and "response data elements" as recited in independent claim 10 and described in the Specification.

Accordingly, Hagiawara does not teach or suggest every element recited in independent claim 10, as is required for a proper rejection under 35 U.S.C. §102.. Therefore, independent claim 10 is allowable over Hagiawara, and the rejection under 35 U.S.C. §102 should be withdrawn.

Claims 11-13 depend from independent claim 10 and are allowable for at least the same reasons as independent claim 10.

Claim Rejections – 35 U.S.C. §103

Independent claims 1 and 6 were rejected under 35 U.S.C §103 (a) as being unpatentable over Hagiawara (U.S. Pat. No. 5,450,419) in view of Parr (U.S. Pub. 2002/0194571). This rejection is respectfully traversed, as Hagiawara does not teach that which the examiner relies upon it to teach and, even if the references were combined, the combination does not teach the invention recited in independent claim 1.

Independent claim 1 recites an error checking method comprising:

A. receiving a data element including parity information;

B. performing a parity check of the data element to determine whether the data element is valid;

C. generating a CRC for the data element; and

D. corrupting the generation of the CRC if the parity check performed determines that the data element is invalid.

As set forth above, Hagiawara teaches a ring transmission system including a main controller 2 and a plurality of error checking nodes 3-1 to 3-n. Communication data, including error correction codes, is transmitted from the main controller 2 to the nodes 3-1 to 3-n. The error correction codes enable the nodes to check the communication data for errors in data length and in an associated CRC code. If errors are present, the node adds an error detection component to the communication data and returns the communication data, along with the appended error detection component, to the main controller. The original portion of the communication data, including the error correction codes, is not altered in any way.

First, Hagiawara does not teach "receiving a data element including parity information." The communication data described in Hagiawara includes error checking codes ERC-1 and ERC-2, for enabling the nodes to determine if data length or CRC errors, recpectively, are present in the data. Hagiawara does not disclose that the received communication data includes parity information.

Second, Hagiawara does not teach "performing a parity check of the data element to determine whether the data element is valid." Hagiawara teaches using the CRC code ERC-2 for checking for CRC errors in CRC circuit 33. There is not teaching or suggestion of checking the parity of the communication data to determine its validity.

Third, Hagiawara does not teach "generating a CRC for the data element." As set forth in applicant's specification, in lines 10-12 of Page 13, CRC generation involves applying a checksum of the data that follows a particular formula. Hagiawara's CRC circuit 33 only checks for CRC errors in the communication data and his CRC error code addition circuit 39 adds a predetermined CRC error detection signal ERD-2 to the communication data. As shown in Fig. 5C, error detection signal ERD-2 includes a number of bits indicating the presence of a CRC error. No CRC codes are generated in either of these components.

Fourth, Hagiawara does not teach "corrupting the generation of the CRC if the parity check performed determines that the data element is invalid." As set forth above, Hagiawara

does not teach checking the parity of the communication data. Therefore, he cannot teach doing *anything* based on the determination of such a check. Further, Hagiawara does not teach generating a CRC. Therefore, he cannot teach corrupting the generation of the CRC. As set forth above, upon detecting a CRC error, Hagiawara adds error detection code ERD-2 to the communication data. The original error check code ERC-2 is not altered in any way.

The examiner relies on Parr to make up for the fact that Hagiawara does not teach corrupting the CRC. Even if this combination was proper, and even if Parr taught what the examiner suggests it does, since Hagiawara does not teach *any* of the elements of independent claim 1, the addition of Parr would still not render claim 1 unpatentable over the combination.

Applicants assert that Parr also does not teach what the examiner suggests it teaches. Specifically, Parr does not teach corrupting the generation of a CRC. As specifically shown in Figs. 6 and 8, Parr generates a CRC mask prior to the transmission of data and removes the mask upon reception of the data. After performing a parity check (Step 76, Fig. 8), if the data is valid, it is accepted. If not, it is ignored. See Paragraph [0028], lines 24-25. Parr does not have a need to, and therefore does not teach, corrupting the CRC.

Accordingly, since Hagiawara does not teach *any* of the elements of independent claim 1 and Parr does not teach corrupting CRC, the combination of Hagiawara and Parr does not teach the invention recited in independent claim 1. Therefore, independent claim 1 is allowable over the combination and the rejection of claim 1 under 35 U.S.C. §103 should be withdrawn.

Claim 2 depends from independent claim 1 is allowable for at least the same reasons as independent claim 1.

Independent claim 6 recites an error checking system comprising:

an input device for receiving a data element including parity information;

a parity check device for checking the parity information of the data element to determine whether the data element is valid;

a CRC generator coupled to the parity check device for generating a CRC for the data element; and

an output device for transmitting the data element with the parity information and CRC to a downstream device over a transmission link;

wherein the parity check device is operative to output a corruption signal to the CRC generator if the parity check device determines that the data element is invalid, to instruct the CRC generator to corrupt the CRC generation for that data element.

First, Hagiawara does not teach "an input device for receiving a data element including parity information." The communication data described in Hagiawara includes error checking codes ERC-1 and ERC-2, for enabling the nodes to determine if data length or CRC errors, recpectively, are present in the data. Hagiawara does not disclose that the received communication data includes parity information.

Second, Hagiawara does not teach "a parity check device for checking the parity information of the data element to determine whether the data element is valid." Hagiawara teaches using the CRC code ERC-2 for checking for CRC errors in CRC circuit 33. There is not teaching or suggestion of checking the parity of the communication data to determine its validity.

Third, Hagiawara does not teach "a CRC generator coupled to the parity check device for generating a CRC for the data element." As set forth in applicant's specification, in lines 10-12 of Page 13, CRC generation involves applying a checksum of the data that follows a particular formula. Hagiawara's CRC circuit 33 only checks for CRC errors in the communication data and his CRC error code addition circuit 39 adds a predetermined CRC error detection signal ERD-2 to the communication data. As shown in Fig. 5C, error detection signal ERD-2 includes a number of bits indicating the presence of a CRC error. No CRC codes are generated in either of these components.

Fourth, Hagiawara does not teach "an output device for transmitting the data element with the parity information and CRC to a downstream device over a transmission link." As set forth above, Hagiawara only teaches communication data having a CRC code ERC-2. Hagiawara does not teach parity in addition to the CRC code ERC-2.

Fifth, Hagiawara does not teach that "the parity check device is operative to output a corruption signal to the CRC generator if the parity check device determines that the data element is invalid, to instruct the CRC generator to corrupt the CRC generation for that data element." As set forth above, Hagiawara does not teach checking the parity of the communication data. Therefore, he cannot teach doing *anything* based on the determination of

such a check. Further, Hagiawara does not teach generating a CRC. Therefore, he cannot teach corrupting the generation of the CRC. As set forth above, upon detecting a CRC error, Hagiawara adds error detection code ERD-2 to the communication data. The original error check code ERC-2 is not altered in any way.

The examiner relies on Parr to make up for the fact that Hagiawara does not teach corrupting the CRC. Even if this combination was proper, and even if Parr taught what the examiner suggests it does, since Hagiawara does not teach *any* of the elements of independent claim 1, the addition of Parr would still not render claim 1 unpatentable over the combination.

Applicants assert that Parr also does not teach what the examiner suggests it teaches. Specifically, Parr does not teach corrupting the generation of a CRC. As specifically shown in Figs. 6 and 8, Parr generates a CRC mask prior to the transmission of data and removes the mask upon reception of the data. After performing a parity check (Step 76, Fig. 8), if the data is valid, it is accepted. If not, it is ignored. See Paragraph [0028], lines 24-25. Parr does not have a need to, and therefore does not teach, corrupting the CRC.

Accordingly, since Hagiawara does not teach *any* of the elements of independent claim 6 and Parr does not teach corrupting CRC, the combination of Hagiawara and Parr does not teach the invention recited in independent claim 6. Therefore, independent claim 6 is allowable over the combination and the rejection of claim 6 under 35 U.S.C. §103 should be withdrawn.

Claims 3-5 and 7-9 were rejected under 35 U.S.C. §103 as being unpatentable over Hagiawara and Parr as applied to claims 1 and 6, and further in view of Hong. This rejection is respectfully traversed.

Claims 3-5 depend from independent claim 1 and are allowable for at least the same reasons as independent claim 1.

Claims 7-9 depend from independent claim 6 and are allowable for at least the same reasons as independent claim 6.

Independent Claim 14 was rejected under 35 U.S.C. §103 as being unpatenable over the Hagiawara (U.S. Pat. No. 5,450,419) in view of Parr (U.S. Pub. 2002/0194571) and further in view of Hurt (U.S. Pat. No. 6,954,885). This rejection is respectfully traversed, as Hagiawara does not teach that which the examiner relies upon it to teach and, even if the references were combined, the combination does not teach the invention recited in independent claim 1.

Independent claim 14 recites a data transmission system comprising:

a data transmission device for transmitting data elements to a downstream device;

a data reception device for receiving data elements from the downstream device, the data reception device including:

an input CRC checking device coupled to receive the data elements from the downstream device for checking the validity of received data elements based on a CRC associated with each received data element;

a memory device coupled to the input CRC checking device for storing data elements received from the downstream device after the data elements have been processed by the input CRC checking device; and

an output CRC checking device coupled to receive the data elements from the memory device for checking the validity of the data elements based on the CRC associated with each data element.

Contrary to the examiner's assertions, Hagiawara's input circuit 30 is not an input CRC checking device. There is absolutely no disclosure in Hagiawara to suggest that CRC checking is done in input circuit 30. The only reference in Hagiawara to input circuit 30 is that "communication data from an upstream node is received by an input circuit 30 which decodes the data to an NRZ code when the input circuit 30 modulates and sends the data." (Col 3, lines 54-57). Accordingly, there is not teaching or suggestion that input circuit 30 is a CRC checking device.

Further, Hagiawara's output circuit 35 is not an output CRC checking device. There is absolutely no disclosure in Hagiawara to suggest that CRC checking is done in output circuit 35. As set forth in Column 4, lines 23-27, output circuit 35 simply receives signals output by switch

34. Accordingly, there is not teaching or suggestion that input circuit 30 is a CRC checking device.

Accordingly, Hagiawara does not teach what the examiner relies upon it to teach. Therefore, the combination of Hagiawara and Hurt suggested by the examiner is improper, because Hagiawara does not teach an input CRC checking device and an output CRC checking device for the memory device of Hurt to be coupled between. Accordingly, the combination cannot teach the invention recited in independent claim 14.

Therefore, since Hagiawara does not teach the input CRC checking device and an output CRC checking device of independent claim 14, the combination of Hagiawara and Hurt, even if proper, does not teach the invention recited in independent claim 14. Therefore, independent claim 14 is allowable over the combination and the rejection of claim 14 under 35 U.S.C. §103 should be withdrawn.

Claims 15 - 20 depend from independent claim 14 and are allowable for at least the same reasons as independent claim 14.

Based on the foregoing amendments and remarks, applicant asserts that pending claims 1-20 are allowable over the prior art of record and respectfully requests that a timely Notice of Allowance be issued in this application.

In the event the Examiner deems personal contact desirable in the disposition of this case, the Examiner is invited to call the undersigned attorney at 508.293.7835.

Please charge all fees occasioned by this submission to Deposit Account No. 05-0889.

Respectfully submitted,

7/18/07

Date

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